

## CLAIMS

- 5           1.       An image forming apparatus, comprising:  
              a movable print device;  
              a sensed device having indicia that is capable of being sensed  
              positioned adjacent to the movable print device; and  
              at least first and second indicia sensors carried by the movable print  
10       device in spaced relation to one another.
2.       An image forming apparatus as claimed in claim 1, wherein the  
movable print device includes at least one ink jet pen having a plurality of nozzles.
- 15           3.       An image forming apparatus as claimed in claim 1, wherein the  
movable print device comprises a plurality of printer elements.
4.       An image forming apparatus as claimed in claim 1, wherein the  
movable print device comprises a plurality of printer elements arranged in first and  
20       second banks.
5.       An image forming apparatus as claimed in claim 1, wherein the  
sensed device comprises an encoder strip having a plurality of graduations.
- 25           6.       An image forming apparatus as claimed in claim 1, wherein the  
sensed device comprises at least first and second sensed devices positioned in  
spaced relation to one another, the first indicia sensor is in a sensing relationship  
with the first sensed device, and the second indicia sensor is in a sensing  
relationship with the second sensed device.

7. An image forming apparatus as claimed in claim 1, wherein at least one of the first and second indicia sensors comprises a light source and a light sensor.

5 8. An image forming apparatus as claimed in claim 1, further comprising:

a controller, operably connected to the print device and the first and second indicia sensors, that controls a first portion of the print device at least partially in response to data from the first indicia sensor and controls a second  
10 portion of the print device at least partially in response to data from second indicia sensor.

9. An image forming apparatus as claimed in claim 8, wherein the print device includes at least first and second printer elements and the controller  
15 controls the first printer element at least partially in response to data from the first indicia sensor and controls the second printer element at least partially in response to data from the second indicia sensor.

10. An image forming apparatus as claimed in claim 8, wherein the print  
20 device includes a relatively tall printer element defining first and second longitudinal ends and the controller controls a portion of the printer element adjacent to the first longitudinal end at least partially in response to data from the first indicia sensor and controls a portion of the printer element adjacent to the second longitudinal end at least partially in response to data from the second  
25 indicia sensor.

11. A scanning carriage for use in an image forming apparatus, the image forming apparatus including at least one sensed device having indicia that is capable of being sensed, the scanning carriage comprising:

30 a main body configured to at least one printer element; and  
at least first and second indicia sensors carried by the main body in spaced relation to one another.

12. A scanning carriage as claimed in claim 11, wherein the main body is configured to carry a bank of printer elements, the main body defines first and second longitudinal ends, and the first and second indicia sensors are respectively located near the first and second longitudinal ends of the main body.

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13. A scanning carriage as claimed in claim 11, wherein the main body is configured to carry first and second banks of printer elements, the first indicia sensor is closer to the first bank, and the second indicia sensor is closer to the second bank.

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14. A scanning carriage as claimed in claim 13, wherein the first and second banks define respective longitudinal ends, the first indicia sensor is located between the longitudinal ends of the first bank, and the second indicia sensor is located between the longitudinal ends of the second bank.

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15. A scanning carriage as claimed in claim 11, wherein the at least one printer element defines first and second longitudinal ends, the first indicia sensor is positioned adjacent to the first longitudinal end, and the second position sensor is positioned adjacent the second longitudinal end.

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16. A scanning carriage as claimed in claim 15, wherein main body is configured to carry a plurality of printer elements.

17. An image forming apparatus, comprising:  
25 a print device, including a carriage and a plurality of printer elements supported on the carriage, movable along a scan axis;  
at least one encoder strip positioned along at least a portion of the scan axis;  
at least first and second encoder strip sensors carried by the print  
30 device adjacent to the at least one encoder strip and in spaced relation to one another; and

a controller, operably connected to the printer elements and the at least first and second encoder strip sensors, that controls the operation of a first group of printer elements at least partially in response to data from the first encoder strip sensor and controls the operation of a second group of printer elements at least partially in response to data from the second encoder strip sensor.

18. An image forming apparatus as claimed in claim 17, wherein the printer elements comprise ink jet pens.

19. An image forming apparatus as claimed in claim 17, wherein the plurality of printer elements are arranged in a bank defining first and second longitudinal ends, the first encoder strip sensor is located adjacent to the first longitudinal end, and the second encoder strip sensor is located adjacent to the second longitudinal end.

20. An image forming apparatus as claimed in claim 17, wherein the plurality of printer elements are arranged in first and second banks, the first encoder strip sensor is located adjacent to the first bank, and the second encoder strip sensor is located adjacent to the second bank.

21. An image forming apparatus as claimed in claim 17, wherein the printer elements define first and second longitudinal ends, the first encoder strip sensor is positioned adjacent to the first longitudinal ends, and the second encoder strip sensor is positioned adjacent to the second longitudinal ends.

22. A method of operating a print device, comprising:  
moving the print device past a sensed device having indicia that is capable of being sensed; and  
sensing the indicia with a first indicia sensor carried by the print device and a second indicia sensor carried by the print device in spaced relation to the first indicia sensor.

23. A method as claimed in claim 22, wherein the sensed device comprises an encoder strip, the indicia comprises a plurality of graduations, and sensing the indicia comprises sensing the graduations with the first and second  
5 indicia sensors.

24. A method as claimed in claim 22, wherein the sensed device comprises first and second sensed devices and sensing the indicia comprises sensing the indicia on the first sensed device with the first indicia sensor and  
10 sensing the indicia on the second sensed device with the second indicia sensor.

25. A method as claimed in claim 22, wherein the sensed device comprises first and second encoder strips, the indicia comprises a plurality of graduations on each encoder strip, and sensing the indicia comprises sensing the  
15 graduations on the first encoder strip with the first indicia sensor and sensing the graduations on the second encoder strip with the second indicia sensor.

26. A method as claimed in claim 22, further comprising :  
controlling operation of a first portion of the print device at least  
20 partially in response to data obtained by sensing the indicia with the first indicia sensor; and

controlling operation of a second portion of the print device at least partially in response to data obtained by sensing the indicia with the second indicia sensor.

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27. A method as claimed in claim 26, wherein the print device includes at least first and second printer elements, controlling operation of the first portion of the print device comprises controlling the first printer element at least partially in response to data obtained by sensing the indicia with the first indicia sensor, and  
30 controlling operation of the second portion of the print device comprises controlling the second printer element at least partially in response to data obtained by sensing the indicia with the second indicia sensor.

28. A method as claimed in claim 26, wherein the print device includes a relatively tall printer element defining first and second longitudinal ends, controlling operation of the first portion of the print device comprises controlling a portion of the printer element adjacent to the first longitudinal end at least partially in response to data obtained by sensing the indicia with the first indicia sensor, and controlling operation of the second portion of the print device comprises controlling a portion of the printer element adjacent to the second longitudinal end at least partially in response to data obtained by sensing the indicia with the second indicia sensor.

29. An image forming apparatus, comprising:  
a movable print device; and  
position sensing device independently sensing a position of at least first and second predetermined locations on the movable print device.

30. An image forming apparatus as claimed in claim 29, wherein the movable print device includes at least one ink jet pen having a plurality of nozzles.

31. An image forming apparatus as claimed in claim 29, wherein the movable print device comprises a plurality of printer elements.

32. An image forming apparatus as claimed in claim 29, wherein the movable print device comprises a plurality of printer elements arranged in first and second banks.

33. An image forming apparatus as claimed in claim 29, further comprising:  
a controller, operably connected to the print device and position sensing device, that controls a first portion of the print device at least partially in response to the position of the first location on the print device and controls a

second portion of the print device at least partially in response to the position of the second location on the print device.

34. An image forming apparatus as claimed in claim 33, wherein the  
5 print device includes at least first and second printer elements and the controller controls the first printer element at least partially in response to the position of the first location on the print device and controls the second printer element at least partially in response to the position of the second location on the print device.

10 35. An image forming apparatus as claimed in claim 33, wherein the print device includes a relatively tall printer element defining first and second longitudinal ends and the controller controls a portion of the printer element adjacent to the first longitudinal end at least partially in response to the position of the first location on the print device and controls a portion of the printer element  
15 adjacent to the second longitudinal end at least partially in response to the position of the second location on the print device.

36. A method of operating a print device, the method comprising :  
sensing the position of first and second spaced locations on the print  
20 device;

controlling operation of a first portion of the print device at least partially in response to data obtained by sensing the position of the first location; and

controlling operation of a second portion of the print device at least  
25 partially in response to data obtained by sensing the position of the second location.

37. A method as claimed in claim 36, wherein sensing the position of first and second spaced locations on the print device comprises sensing a sensed  
30 device with first and second spaced sensing elements.

38. A method as claimed in claim 36, wherein the print device includes at least first and second printer elements, controlling operation of the first portion of the print device comprises controlling the first printer element at least partially in response to data obtained by sensing the position of the first location, and  
5 controlling operation of the second portion of the print device comprises controlling the second printer element at least partially in response to data obtained by sensing the position of the second location.

39. A method as claimed in claim 36, wherein the print device includes a  
10 relatively tall printer element defining first and second longitudinal ends, controlling operation of the first portion of the print device comprises controlling a portion of the printer element adjacent to the first longitudinal end at least partially in response to data obtained by sensing the position of the first location, and controlling operation of the second portion of the print device comprises controlling  
15 a portion of the printer element adjacent to the second longitudinal end at least partially in response to data obtained by sensing the position of the second location.

40. A method as claimed in claim 36, wherein sensing the position of  
20 first and second spaced locations on the print device comprises sensing first and second fiducial reference points on the print device.